

Appl. No.: 09/963,360
Amdt. Dated: 02/09/2007
Off. Act. Dated: 11/09/2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-30 (canceled)

31. (currently amended): An apparatus for reducing the moisture content in a food product, comprising:

a housing;

said housing having a first drying zone and a second drying zone;

a bed of ~~granular support media~~ a plurality of unjoined spherical support members, wherein pieces of a food product are supported and separated by said support members; ~~configured to separate and support pieces of a food product;~~

a conveyor;

said conveyor configured to move said ~~support media bed~~ plurality of support members and said pieces of food product through said first and second drying zones;

a first heat source;

said first heat source configured to circulate heated gas through said first drying zone at a first temperature;

a second heat source;

said second heat source configured to circulate heated gas through said second drying zone at a second temperature; and

an ultrasound source;

said ultrasound source configured to expose said food product in at least one of said drying zones to ultrasonic waves without compressing said food product.

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32. (previously presented): An apparatus as recited in claim 31:

wherein said first heat source is configured to circulate said gas through said housing at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot; and

wherein said second heat source are configured to circulate said gas through said housing at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot.

33. (previously presented): An apparatus as recited in claim 31:

wherein said first heat source is configured to circulate gas through said first drying zone at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot; and

wherein said second heat source is configured to circulate gas through said second drying zone at a rate of rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot.

34. (canceled)

35. (currently amended): An apparatus as recited in claim 31, wherein said ~~granular support media~~ support members comprises a plurality of spheres.

36. (previously presented): An apparatus as recited in claim 35, wherein said conveyor includes a plurality of vanes having an intermediate area containing said spheres.

37. (original): An apparatus as recited in claim 35, wherein said spheres are held in a container placed on said conveyor.

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38. (original): An apparatus as recited in claim 31, wherein said ultrasonic source and at least one said heat source are configured to simultaneously expose said food product to said ultrasonic waves and said heated gas.

39. (original): An apparatus as recited in claim 38, wherein said ultrasonic source is configured for exposure at wavelengths within the range of approximately 20 KHz to approximately 100 KHz for approximately fifteen to ninety minutes.

Claims 40-58 (canceled)

59. (currently amended): An apparatus for desiccating a food product, comprising:

an ultrasound source;

said ultrasound source configured to subject a food product to ultrasonic waves without touching said food product;

a plurality of unjoined spherical support members, wherein pieces of a food product are supported and separated by said support members;

a first source of air heated to a temperature of approximately 190° F to approximately 210° F and configured to circulate heated air around the food product for approximately fifteen minutes;

a second source of air heated to a temperature of approximately 170° F to approximately 190° F and configured to circulate heated air around the food product for approximately fifteen minutes; and

a third source of air heated to a temperature of approximately 150° F to approximately 170° F and configured to circulate heated air around the food product for approximately one hour.

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60. (previously presented): An apparatus as recited in claim 59, wherein said first, second and third sources of heated air are configured to send heated air through said housing at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot.

61. (previously presented): An apparatus as recited in claim 59:

wherein said first source of air is configured to circulate heated air at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot; and

wherein said second source of air is configured to circulate heated air at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot; and

wherein said third source of air is configured to circulate heated air at a rate of between approximately 150 cubic feet per minute per square foot and approximately 450 cubic feet per minute per square foot.

Claims 62-68 (canceled)

69. (previously presented): An apparatus as recited in claim 31, said housing further comprising a third drying zone.

70. (previously presented): An apparatus as recited in claim 31, further comprising means for recycling circulated heated gas.

71. (currently amended): An apparatus as recited in claim 70, wherein said recycled gas is circulated between a first, second or third drying zone.

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72. (currently amended): An apparatus as recited in claim 71, wherein said recycling gas is circulated from said second drying zone to said third drying zone.

73. (previously presented): An apparatus as recited in claim 31, wherein said heated gas comprises nitrogen.

74. (currently amended): An apparatus as recited in claim 31, further comprising means for separating said food product from said ~~granular support media~~ plurality of unjoined spherical support members.

75. (currently amended): An apparatus as recited in claim 74, wherein said means for separating said food product from said ~~granular support media~~ plurality of unjoined spherical support members comprises a vibrating perforated table.

76. (previously presented): An apparatus as recited in claim 31, wherein said second heat source comprises a heat exchanger.

77. (previously presented): An apparatus as recited in claim 59, wherein said ultrasound source is configured for exposure at wavelengths within the range of approximately 20 kHz to approximately 100 kHz.

78. (previously presented): An apparatus as recited in claim 59, further comprising a plurality of ultrasound sources.

79. (currently amended): An apparatus as recited in claim 59, further comprising a ~~granular support media~~ a plurality of unjoined spherical support members, configured

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~~to separate and support pieces of a food product wherein pieces of a food product are supported and separated by said support members.~~

80. (currently amended): An apparatus as recited in claim 79, wherein said granular support media a plurality of unjoined spherical support members comprises a plurality of spheres.

New Claims:

81. (new): An apparatus for desiccating a material, comprising:
a housing;
said housing having a plurality of drying zones;
at least one source of circulating air coupled to said housing and said drying zones;
a heat source configured to heat air from said source of circulating air in said plurality of drying zones;
a drying bed of a plurality of unjoined spherical support members, wherein pieces of a material are supported and separated by said support members; and
a perforated conveyor belt with a plurality of vanes having an intermediate area containing said spherical support members;
said conveyor belt configured to move said plurality of support members and said pieces of material through said drying zones.

82. (new): An apparatus as recited in claim 81, further comprising means for recycling circulated heated gas.

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83. (new): An apparatus as recited in claim 81, further comprising a heat exchanger, wherein heat from exhaust air from said drying zones heats air from said source of circulated air.

84. (new): An apparatus as recited in claim 81, further comprising a plurality of ultrasound sources.